

Name Key

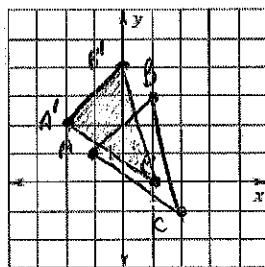
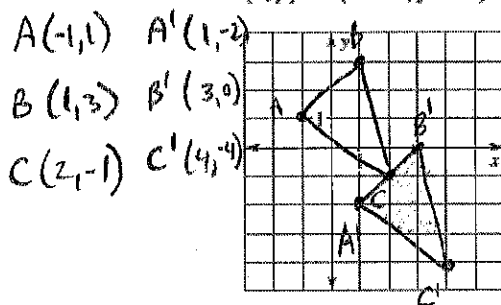
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Chapter 9 **Chapter Test A** For use after Chapter 9

The vertices of $\triangle ABC$ are $A(-1, 1)$, $B(1, 3)$ and $C(2, -1)$. Graph the image of the triangle using prime notation.

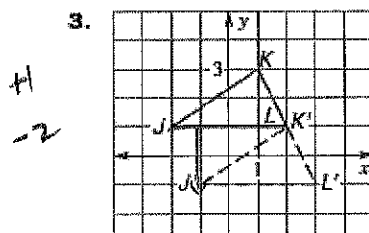
1. $(x, y) \rightarrow (x + 2, y - 3)$

2. $(x, y) \rightarrow (x - 1, y + 1)$

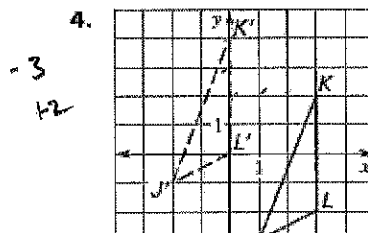


$\triangle J'K'L'$ is the image of $\triangle JKL$ after a translation. Write a rule for the translation.

3.



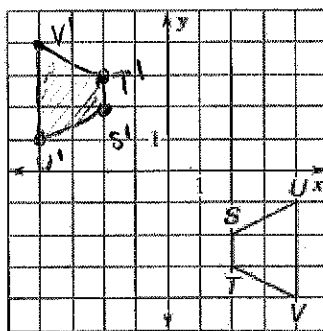
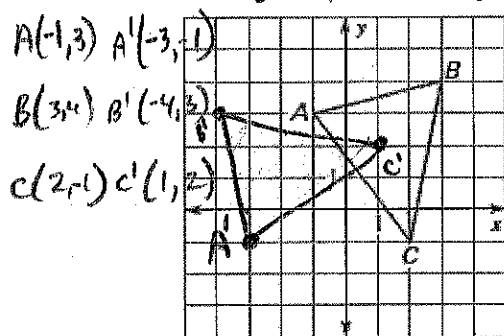
4.



Rotate each figure the given number of degrees counterclockwise about the origin. List the coordinates of the vertices of the image.

11. $90^\circ (a, b) \rightarrow (-b, a)$

12. $180^\circ (a, b) \rightarrow (-a, -b)$



In Exercises 13 and 14, the vertices of $\triangle ABC$ are $A(-4, 4)$, $B(-1, 2)$, and $C(-4, 1)$. Find the vertices of $\triangle A''B''C''$ after a composition of the transformations in the order they are listed.

13. Translation: $(x, y) \rightarrow (x + 3, y - 2)$ $A'(-1, 2)$ $C'(-1, -1)$
 Translation: $(x, y) \rightarrow (x - 1, y + 4)$ $B'(2, 0)$

14. Translation: $(x, y) \rightarrow (x + 2, y + 1)$
 Reflection: in the x-axis

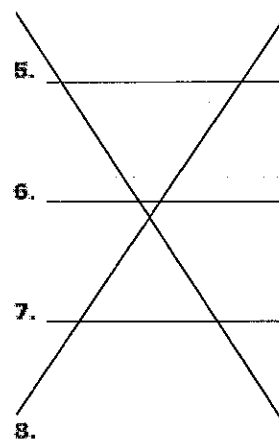
$A'(-2, 5)$
 $B'(1, 3)$
 $C'(-2, 2)$

Answers

1. See left.

2. See left.

$A'(-2, 2)$ 3. $(x, y) \rightarrow (x + 1, y - 2)$
 $B'(0, 4)$ 4. $(x, y) \rightarrow (x - 3, y + 2)$
 $C'(1, 0)$



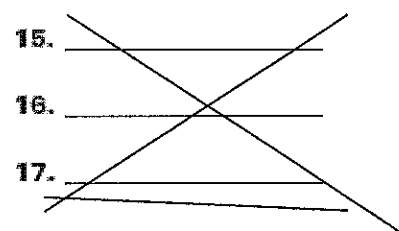
Answers

11. $A'(-3, -1)$ $B'(-4, 3)$
 $C'(1, 2)$

12. $S'(-2, 2)$ $T'(-2, 3)$
 $U'(-4, 1)$ $V'(-4, 4)$

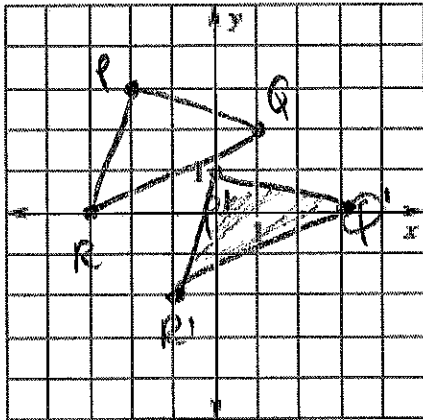
$S(2, 2)$ $T(2, 3)$ 13. $A''(-2, 6)$ $B''(1, 3)$
 $U(4, 1)$ $V(4, 4)$ $C''(-2, 4)$

14. $A''(-2, -5)$ $B''(1, -3)$
 $C''(-2, -2)$

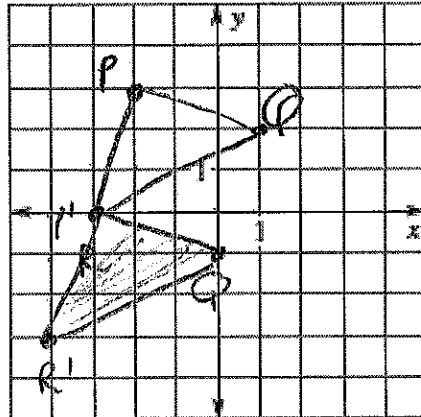


The vertices of $\triangle PQR$ are $P(-2, 3)$, $Q(1, 2)$, and $R(-3, 0)$. Translate $\triangle PQR$ using the given vector. Graph $\triangle PQR$ and its image.

3. $\langle 2, -2 \rangle$



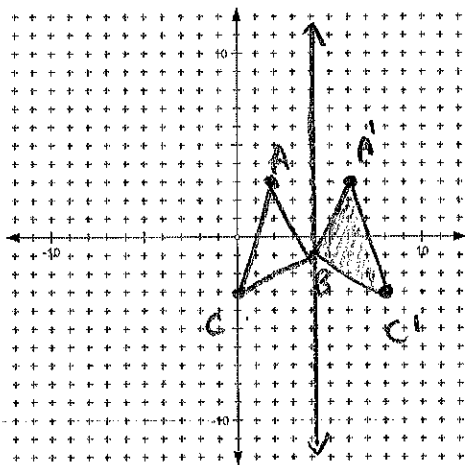
4. $\langle -1, -3 \rangle$



5. Graph the preimage and image of $\triangle ABC$ reflected in the line $x = 4$. $A(2, 3)$ $B(4, -1)$ $C(0, -3)$

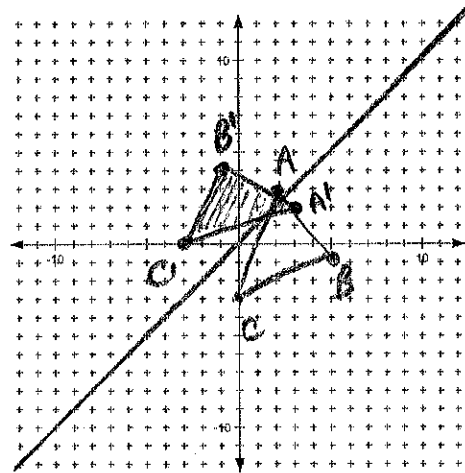
6. Graph the preimage and image of $\triangle ABC$ reflected in the line $y = x$. $A(2, 3)$ $B(4, -1)$ $C(0, -3)$

5.



$A'(6, 3)$
 $B'(4, -1)$
 $C'(8, -3)$

6.



$A'(3, 2)$
 $B'(-1, 4)$
 $C'(-3, 0)$

7. Graph the preimage and image of $\triangle ABC$ dilated about the origin with a ratio of 2.

A (2, 3) B(4, -1) C(0, -3)

8. Graph the preimage and image of $\triangle ABC$ dilated about the point $(-1, 2)$ with a ratio of 2.

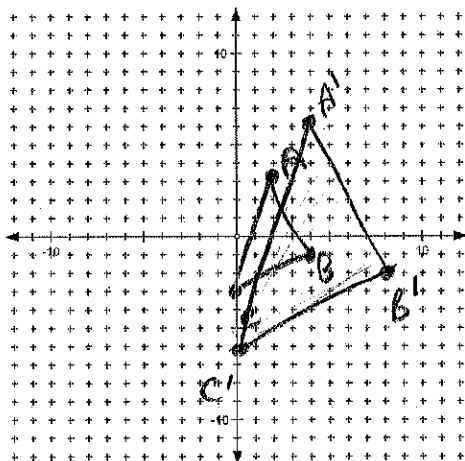
A (2, 3) B(4, -1) C(0, -3)

$(-1, 2)$

7.

8.

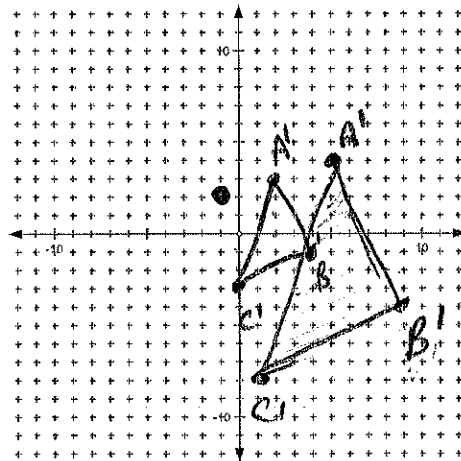
$A'(4, 6)$
 $B'(8, -2)$
 $C'(0, -6)$



$A' \begin{matrix} 3 & 1 \\ 6 & 2 \end{matrix}$
 $(5, 4)$

$B' \begin{matrix} 5 & 3 \\ 10 & 6 \end{matrix}$
 $(9, -4)$

$C' \begin{matrix} 1 & 5 \\ 2 & 10 \end{matrix}$
 $(1, -8)$



9. Write the following vectors in component form.

\overrightarrow{AB} A(6, 0) B(10, -4)

\overrightarrow{CD} C(8, -6) D(5, 2)

$\langle 4, -4 \rangle$

$\langle -3, +8 \rangle$

Use the picture to the right for the following questions.

10. What is the image of H rotated 90° about G? D

11. What is the image of H rotated 180° about G? B

12. What is the image of H rotated 270° clockwise about G? F

13. What is the image of H rotated 90° about I? F

